

Work Order ID 134145

Friday, July 03, 2015 1:42:13 PM

134145

Page 1

Item ID: D5155-043 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Co-Pilot Collective Head Assembly (212)
 Start Date: 7/03/15 Start Qty: 5.00 ***5*** Cust Item ID:
 Required Date: 7/10/15 Req'd Qty: 5.00 ***5*** Customer:
 Reference:

Approvals: Process Plan: *[Signature]* Date: 157-3 Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D5155	B

110 Weld per dwg A/R Aluminum rod Batch: 11127399 0.00

110

Large Fab Memo 0.01
 Large Fab WELD D4410-7 to D5155-3 AS PER DWG

5 2/15-7-6

120 QC9- Inspect visual per QSI004- Fusion Welds 0.00

120

QC Memo 0.00
 Quality Control

5 JUL 06 2015 **DAS 24 9-89**

130 QC5- Inspect part completeness to step on W/O 0.00

130

QC Memo 0.00
 Quality Control

5 JUL 06 2015 **DAS 24 9-89**

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Outsource process-Anodize per QSI017 4.1.10.1	0.00							
140									
Outsource4	Memo	6.00							
Outsource process - Anodize	Issue P/O to ATG: <u>29046</u> Black Anodize as per Dwg D5155 C OF C REQUIRED								
150	Receive & Inspect for Damage & Mat'l Certs	0.00							
150									
Packaging	Memo	0.00							
Packaging	C OF C REQUIRED								
160	QC6- Inspect dimensions to drawing	0.00							
160									
QC	Memo	0.00							
Quality Control									

CY JUL 07 2015 S

5x SP15-07-10

(5) DAS 38 9-89 JUL 10 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
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Page 3

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Item Name: Co-Pilot Collective Head Assembly (212)

Start Date: 7/03/15 **Start Qty:** 5.00 ***5***

Cust Item ID:

Required Date: 7/10/15 **Req'd Qty:** 5.00 ***5***

Customer:

Reference:

Run Start *NR1*

Approvals: _____ **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Stop ***NR2***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center ID

Operation Description

Set Up/ Run Hours

Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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170

0.00

170

0.01

Small Fab

Memo

RE-PASS HELICOIL TAP IN THREADS AND INSTALL HELI-COIL ASSEMBLY AS PER DWG.

Small Fab

180

QC5- Inspect part completeness to step on W/O	0.00
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180

0.00

QC

Memo

Quality Control

190

Identify as per dwg & Stock Location: ST 373 0.00

190

0.00

Packaging

Memo

Packaging

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected-Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																									
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Work Order ID 134145***134145***

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Item ID: D5155-043 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Co-Pilot Collective Head Assembly (212)
Start Date: 7/03/15 Start Qty: 5.00 ***5*** Cust Item ID:
Required Date: 7/10/15 Req'd Qty: 5.00 ***5*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
200	QC21- Final Inspection - Work Order Release	0.00							
200									
QC	Memo	0.01							
Quality Control									

ML5 JUL 15 2015

AXS-7-15

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
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OTHER : ☐					

Picklist Print

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Work Order ID: 134145

134145

Parent Item: D5155-043

D5155-043

Parent Item Name: Co-Pilot Collective Head Assembly (212)

Start Date: 7/03/15

Required Date: 7/10/15

Start Qty: 5.00

Required Qty: 5.00

Comments: IPP REV:A 15.05.07 NEW ISSUE DD VERF:JLM IPP
REV:B 15.07.02 AS PER DWG REV.B DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4410-7		Manufactured	No				Each	28.0000		5			
D4410-7									**				
Conduit													
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				WA002				28					
				116456				16					
				117222				3					
				117703				9					
D5155-3		Manufactured	No				Each	5.0000		5			
D5155-3									**				
Co-Pilot Collective Head (212)													
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				ST149				5					
				134104				5					
D5155-11		Manufactured	No				Each	0.0000					
D5155-11									**				
Co-Pilot Collective Head (212)													
D5156-11		Manufactured	No				Each	8.0000		5			
D5156-11									**				
Back Plate													
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				st151				8					
				132823				8					

DQA: _____ Date: _____



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Description Work Order Deviation				Disposition																					
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Environment ☐		No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐																			
Design ☐		Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐																			
Doc/Data ☐		Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐																			
Equip/Tooling ☐		Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐																			
Handling/Pre ☐		Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐																			
Material ☐		Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐																			
Internal Transport ☐		Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐																			
Tribal Knowledge ☐		Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐																			
LOA ☐		Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐																			
Substation ☐		Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐																			
Past Expiry Date ☐		Manufacturing Process ☐	OTHER :																						
Misidentified ☐		Past Due ☐																							

Picklist Print

Page 2

Friday, July 03, 2015 1:42:17 PM

Work Order ID: 134145

134145

Parent Item: D5155-043

D5155-043

Parent Item Name: Co-Pilot Collective Head Assembly (212)

Start Date: 7/03/15

Required Date: 7/10/15

Start Qty: 5.00

Required Qty: 5.00

90296A108	Purchased	No	Each	349.0000	55	**	FF	JUL 14 2015
-----------	-----------	----	------	----------	----	----	----	-------------

90296A108

Heli-Coil Insert

Location	Loc Qty	Loc Code
GA 123496 *	9	
127014	9	
ST564	340	
m128972	340	

10
10

39

MS16562-223	Purchased	No	Each	75.0000	10	**	FF	JUL 14 2015
-------------	-----------	----	------	---------	----	----	----	-------------

MS16562-223

Spring Pin

Location	Loc Qty	Loc Code
ST316	75	
120229	75	

10

MS24693-24B	Purchased	No	Each	281.0000	35	**	FF	JUL 14 2015
-------------	-----------	----	------	----------	----	----	----	-------------

MS24693-24B

Screw

Location	Loc Qty	Loc Code
GA	281	
m132256	281	

35

DQA: _____ Date: _____



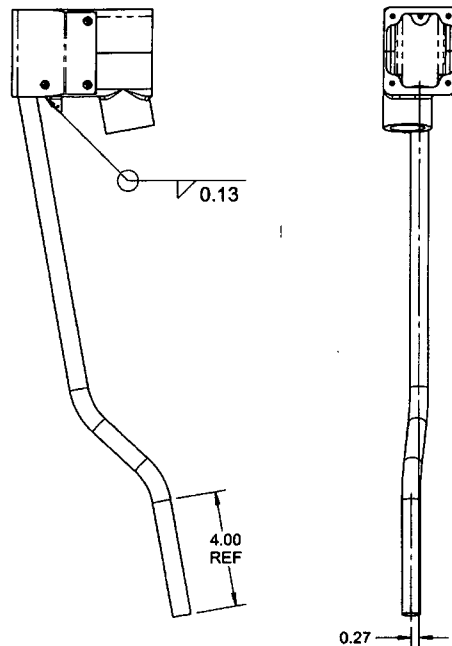
WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work/Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

ITEM	QTY	P/N	DESCRIPTION
1	X	D5155-041	CO-PILOT COLLECTIVE HEAD ASSEMBLY (205)
2	1	D4410-7	CONDUIT
3	1	D5155-1	CO-PILOT COLLECTIVE HEAD (205)
4	1	D5155-9	CO-PILOT COLLECTIVE HEAD (205)
5	1	D5156-9	BACK PLATE
6	11	90296A108	HELI-COIL INSERT (6-32 X 0.276)
7	2	MS16562-223	SLOTTED SPRING PIN
8	7	MS24693-24B	SCREW, CSK 100°

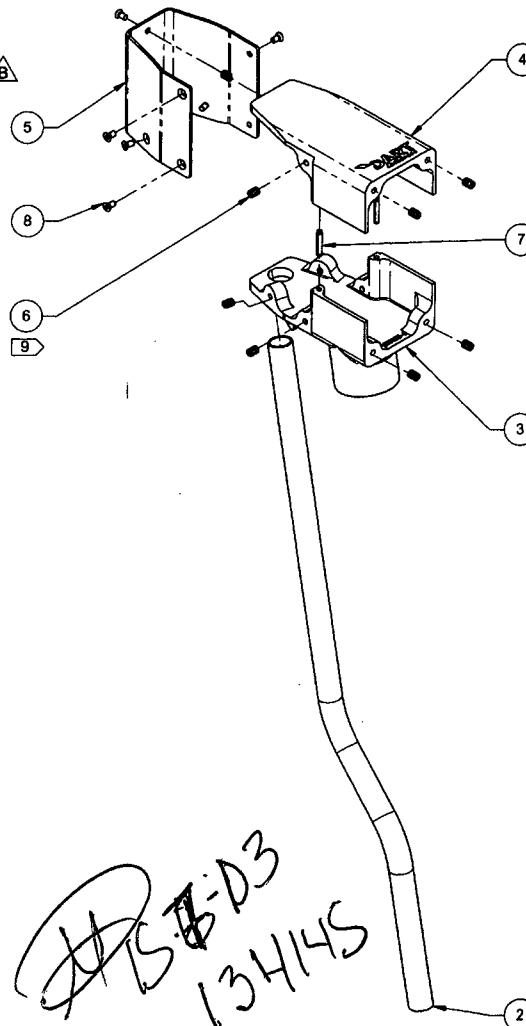


D5155-041 WELDING DETAIL

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: ANODIZE BLACK PER MIL-A-8625F TYPE I OR IB OR IC OR II OR IIB CLASS 2 AFTER WELDING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 1.08 lbs
- 8) WELD PER DART QSI 004
- 9) INSTALL AFTER ANODIZING

D5155-041 CO-PILOT COLLECTIVE HEAD ASSEMBLY (205)



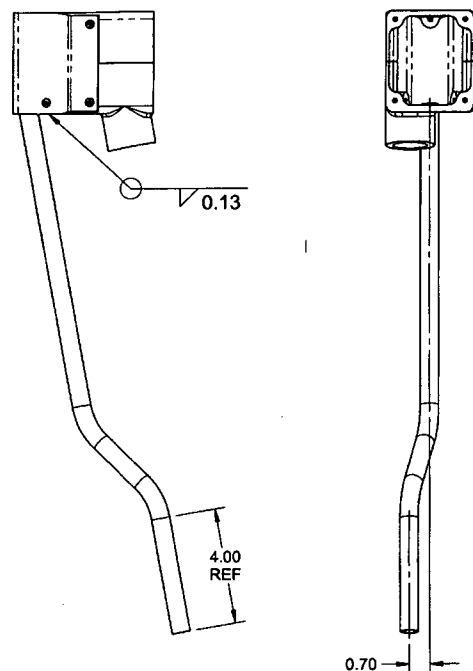
RELEASED

A.P. 2015 JUL 02 ECU 15-577

B	REVISE DIM: ZN D3-7, REVISE NOTE 2: ZN A8-13, A8-14, REVISE LENGTH OF PIN: ZN D6-1, D6-2, D5-3, D6-4, REVISE DEPTH: ZN C7-5, C7-7, C7-9, C7-11, C5-13, C4-14, REVISE DIM: ZN C7-5, C7-7, C7-9, C6-11, B7-13, B7-14, B2-5, B2-7, B2-8, B2-11, C5-13, C4-14, D8-6, D8-8, D8-10, D5-6, D5-8, D5-10, D5-12, B8-7, D7-12, C7-5, C7-7, C7-9, C6-11, D2-13, D2-14	VS	15.05.21
A	NEW ISSUE	VS	14.09.10
REV.	DESCRIPTION	BY	DATE
DESIGN	VS	DART AEROSPACE LTD	
DRAWN	VS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	JFS	D5155	SHEET 1 OF 14
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
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APPROVED

ITEM	QTY	P/N	DESCRIPTION
1	X	D5155-043	CO-PILOT COLLECTIVE HEAD ASSEMBLY (212)
2	1	D4410-7	CONDUIT
3	1	D5155-3	CO-PILOT COLLECTIVE HEAD (212)
4	1	D5155-11	CO-PILOT COLLECTIVE HEAD (212)
5	1	D5156-11	BACK PLATE
6	11	90296A108	HELI-COIL INSERT (6-32 X 0.276)
7	2	MS16562-223	SLOTTED SPRING PIN
8	7	MS24693-24B	SCREW, CSK 100°

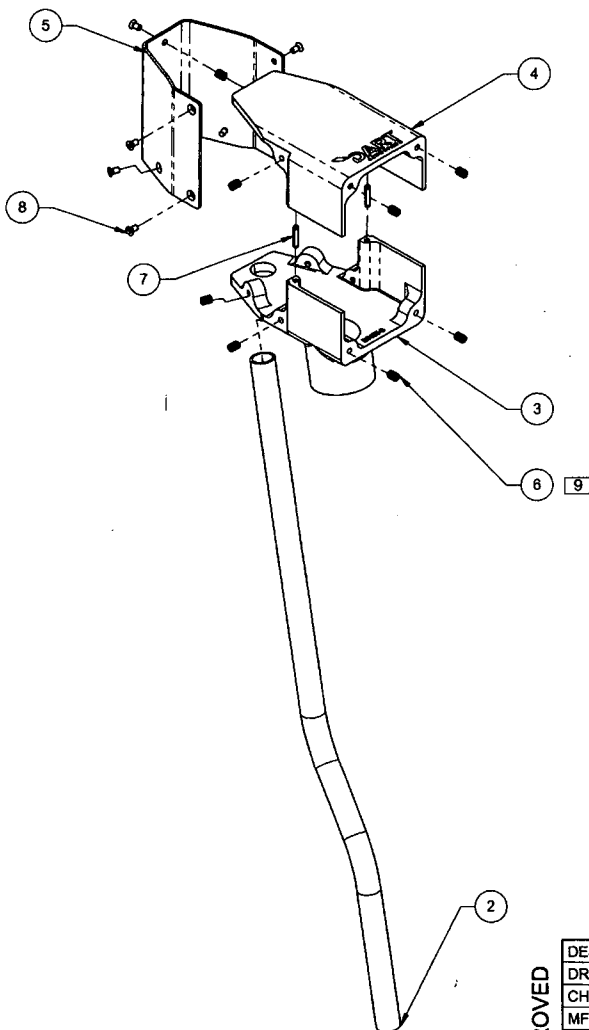


D5155-043 WELDING DETAIL

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: ANODIZE BLACK PER MIL-A-8625F TYPE I OR IB OR IC OR II OR IIB CLASS 2 AFTER WELDING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 1.20 lbs
- 8) WELD PER DART QSI 004
- 9) INSTALL AFTER ANODIZING

D5155-043 CO-PILOT COLLECTIVE HEAD ASSY (212)



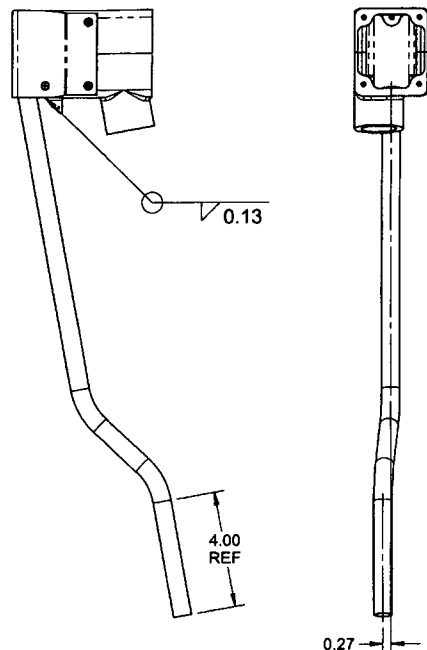
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A.R. 2015 JUL 02

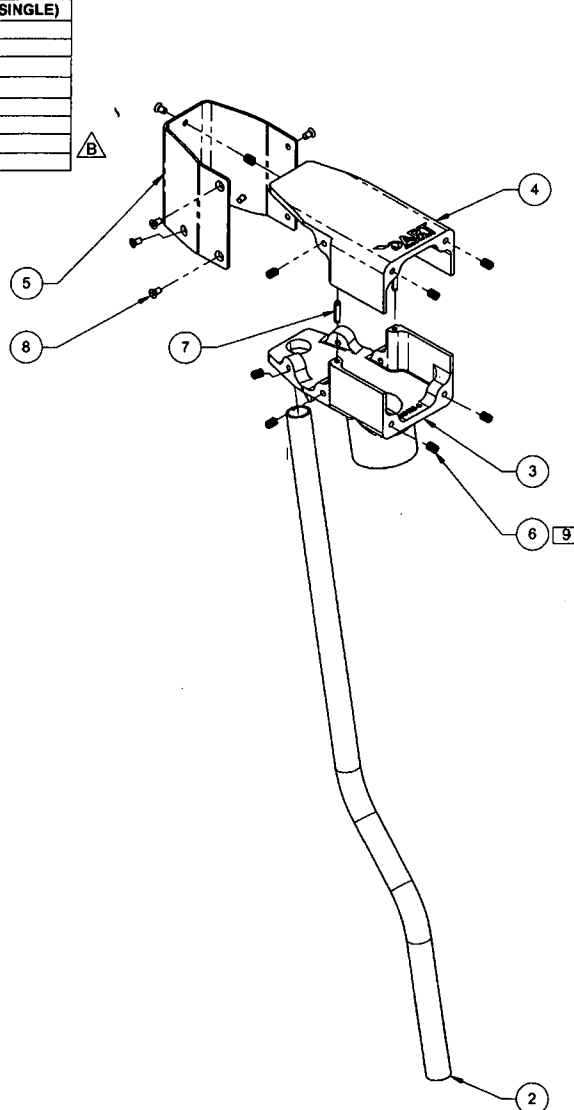
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DRAWN	VS		
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	JFS	D5155	SHEET 2 OF 14
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DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
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APPROVED

ITEM	QTY	P/N	DESCRIPTION
1	X	D5155-045	CO-PILOT COLLECTIVE HEAD ASSEMBLY (EAGLE SINGLE)
2	1	D4410-7	CONDUIT
3	1	D5155-5	CO-PILOT COLLECTIVE HEAD (EAGLE SINGLE)
4	1	D5155-9	CO-PILOT COLLECTIVE HEAD (205)
5	1	D5156-9	BACK PLATE
6	11	90296A108	HELI-COIL INSERT (6-32 X 0.276)
7	2	MS16562-223	SLOTTED SPRING PIN
8	7	MS24693-24B	SCREW, CSK 100°



D5155-045 WELDING DETAIL



D5155-045 CO-PILOT COLLECTIVE HEAD ASSY (EAGLE SINGLE)

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: ANODIZE BLACK PER MIL-A-8625F TYPE I OR IB OR IC OR II OR IIB CLASS 2 AFTER WELDING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 1.06 lbs
- 8) WELD PER DART QSI 004
- 9) INSTALL AFTER ANODIZING

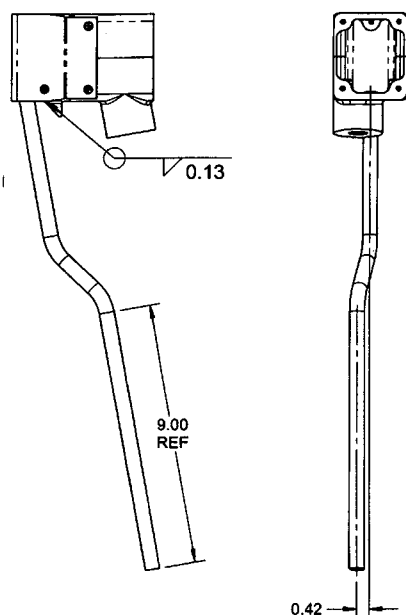
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DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	VS		
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	JFS	D5155	SHEET 3 OF 14
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
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A.E 2015 JUL 02

ITEM	QTY	P/N	DESCRIPTION
1	X	D5155-047	CO-PILOT COLLECTIVE HEAD ASSEMBLY
2	1	D5054-1	CONDUIT
3	2	D5073-1	SNAP RING
4	1	D5155-7	CO-PILOT COLLECTIVE HEAD (205)
5	1	D5155-9	CO-PILOT COLLECTIVE HEAD (205)
6	1	D5156-9	BACK PLATE
7	11	90296A108	HELI-COIL INSERT (6-32 X 0.276)
8	2	MS16562-223	SLOTTED SPRING PIN
9	7	MS24893-24B	SCREW, CSK 100°
10	1	MS27641-3	BEARING

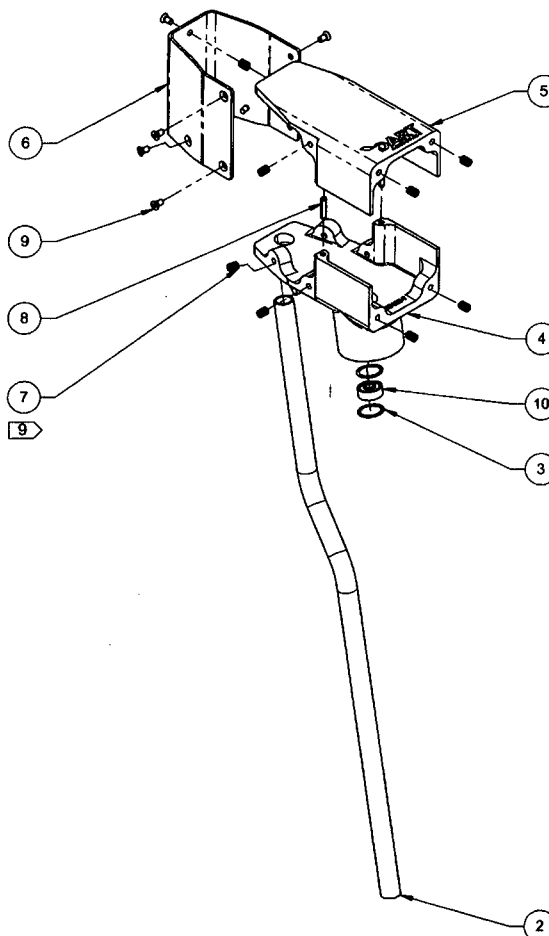


D5155-047 WELDING DETAIL

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: ANODIZE BLACK PER MIL-A-8625F TYPE I OR IB OR IC OR II OR IIB CLASS 2 AFTER WELDING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 1.14 lbs
- 8) WELD PER DART QSI 004
- 9) INSTALL AFTER ANODIZING

**D5155-047 CO-PILOT COLLECTIVE HEAD ASSY
FOR 205 WITH 204-001-290-5 STICK AND THROTTLE ASSEMBLY INSTALLED**

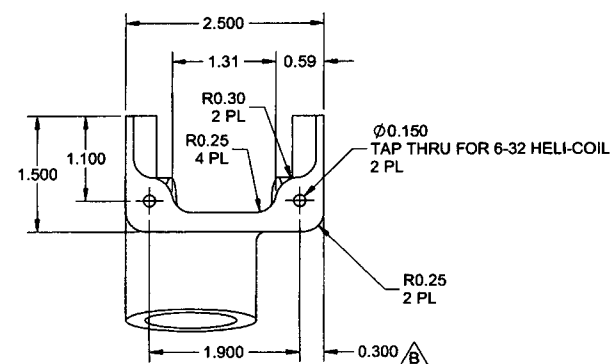
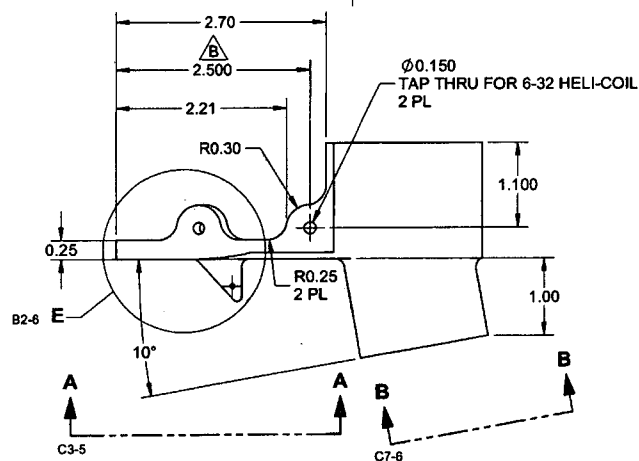
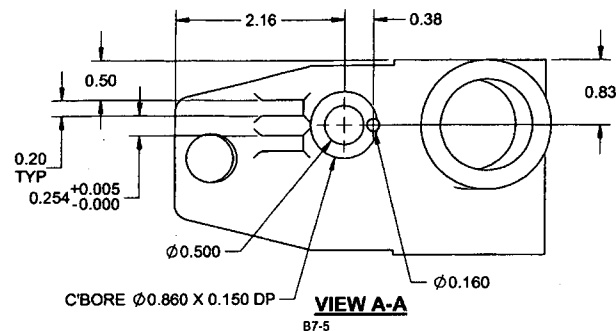
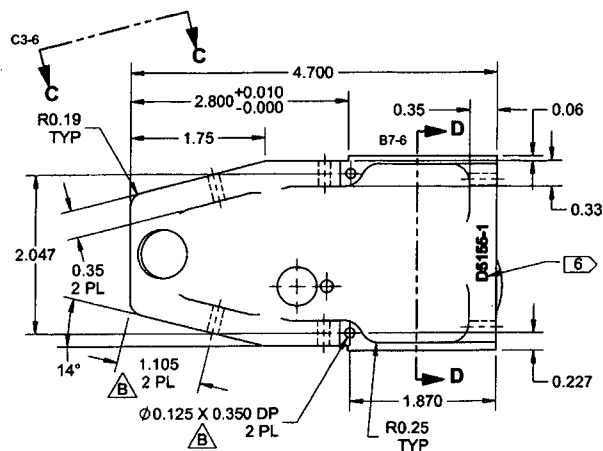


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A-E 2015 JUL 02

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DESIGN	VS	DART AEROSPACE LTD	
DRAWN	VS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	JFS	D5155	SHEET 4 OF 14
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
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RELEASED

A.P. 2015 JUL 02

NOTES:

1) MATERIAL: 6061-T6/T651/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B

2) FINISH: NONE

3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED

4) UNITS: INCHES UNLESS OTHERWISE NOTED

5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX

6) IDENTIFICATION: IDENTIFY PER QSI 044 6.3 IN THIS AREA TO MAX DEPTH
OF 0.010 WITH A MIN. TOOL RAD OF R0.010

7) WEIGHT: 0.47 lbs

8) UNDIMENSIONED FEATURES ARE DEFINED BY D5155-1.SLDPRT

D5155-1 CO-PILOT COLLECTIVE HEAD (205)

APPROVED

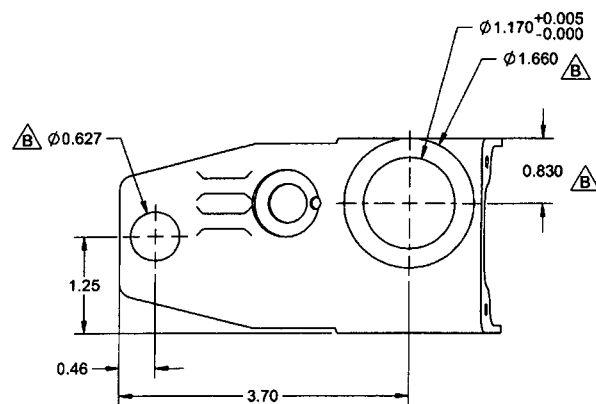
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DRAWN	VS
CHECKED	RF
MFG. APPR.	JFS
APPROVED	HS
DE APPR.	DS
DATE	15.05.21

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. **D5155** REV. B
SHEET 5 OF 14

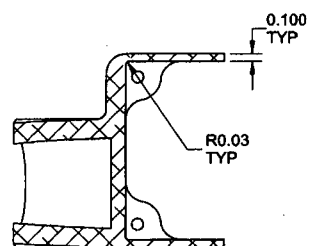
TITLE **CO-PILOT COLLECTIVE HEAD** SCALE NTS

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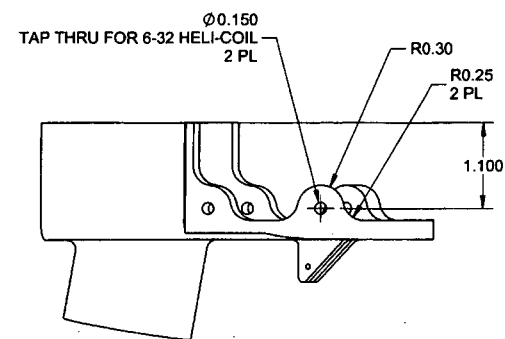
VIEW B-B

B5-5



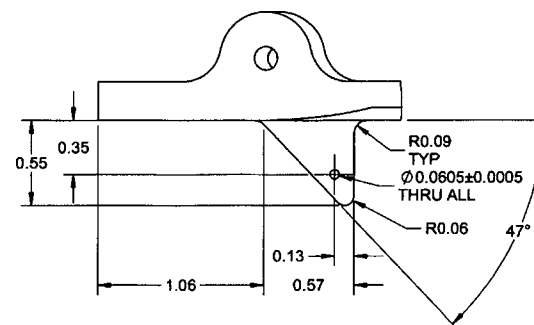
SECTION D-D

D6-5



VIEW C-C

D7-5



DETAIL E

B7-5

RELEASED

A.R. 2015 JUL 02

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: N/A

D5155-1 CO-PILOT COLLECTIVE HEAD (205)

DETAIL VIEWS

APPROVED

DESIGN	VS
DRAWN	VS
CHECKED	RF
MFG. APPR.	JFS
APPROVED	HS
DE APPR.	DS
DATE	15.05.21

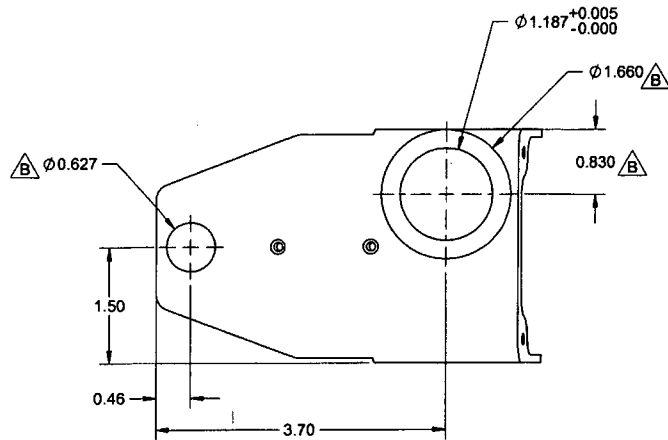
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HAWKESBURY, ONTARIO, CANADA

DRAWING NO. **D5155** REV. B
SHEET 8 OF 14

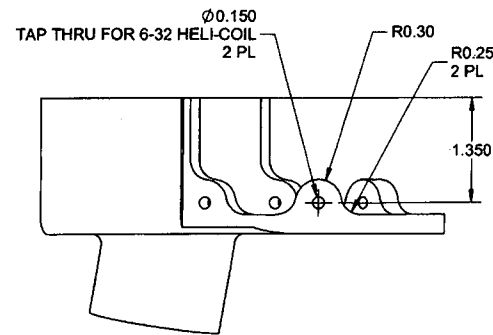
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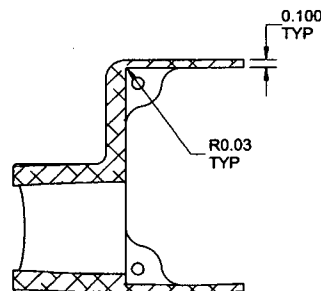
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VIEW G-G
B6-7



VIEW H-H
D7-7



SECTION I-I
D6-7

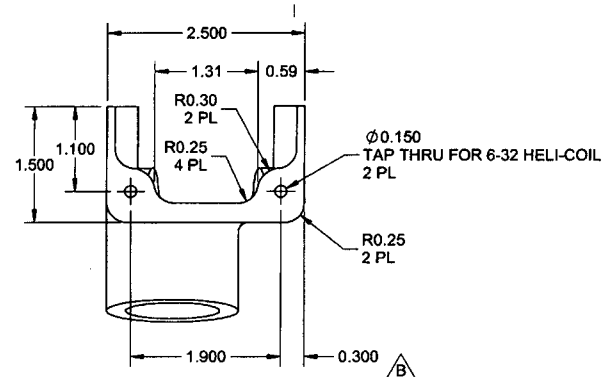
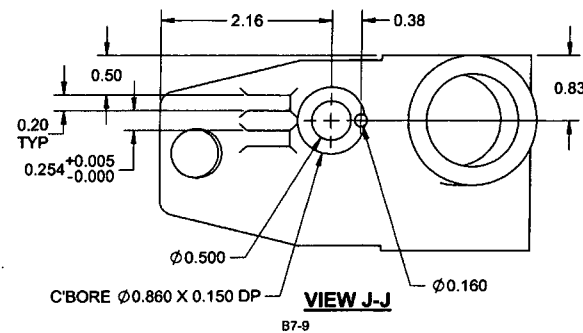
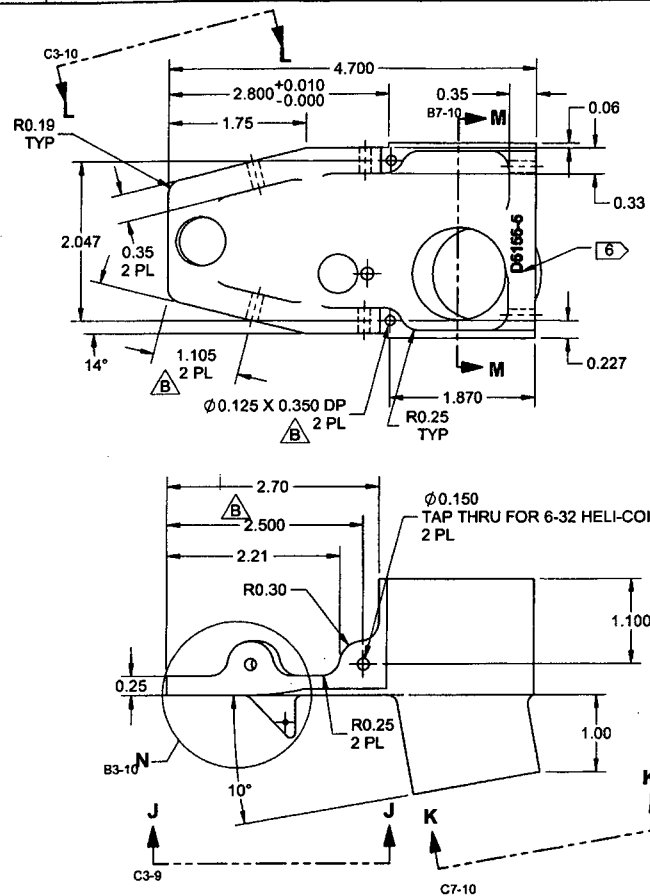
- NOTES:**
 1) MATERIAL: N/A
 2) FINISH: N/A
 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 6) IDENTIFICATION: N/A
 7) WEIGHT: N/A

D5155-3 CO-PILOT COLLECTIVE HEAD (212)
DETAIL VIEWS

RELEASED
A.9.2015 JUL 02

DESIGN	VS	DART AEROSPACE LTD	
DRAWN	VS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO. D5155	REV. B
MFG. APPR.	JFS	SHEET 8 OF 14	
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
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8 7 6 5 4 3 2 1



NOTES:

- 1) MATERIAL: 6061-T6/T651/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M8061T68
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.3 IN THIS AREA TO MAX DEPTH
OF 0.010 WITH A MIN. TOOL RAD OF R0.010
- 7) WEIGHT: 0.45 lbs
- 8) UNDIMENSIONED FEATURES DEFINED BY D5155-5.SLDPRT

D5155-5 CO-PILOT COLLECTIVE HEAD (EAGLE SINGLE)

APPROVED

DESIGN	VS
DRAWN	VS
CHECKED	RF
MFG. APPR.	JFS
APPROVED	HS
DE APPR.	DS
DATE	15.05.21

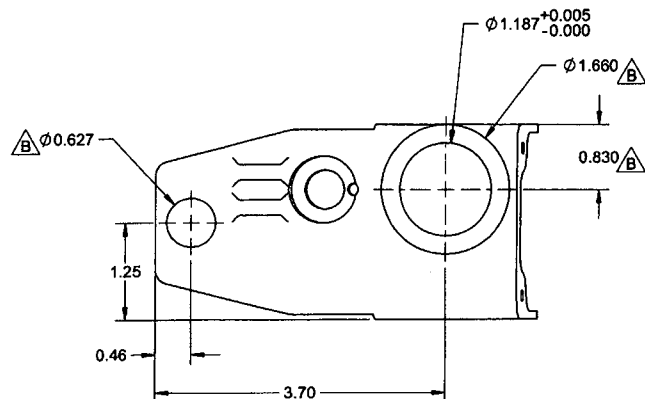
DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. **D5155** REV. B
SHEET 9 OF 14
TITLE **CO-PILOT COLLECTIVE HEAD** SCALE NTS

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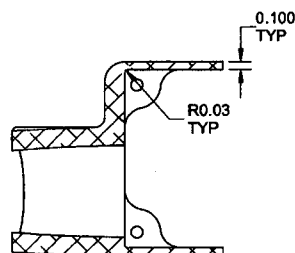
RELEASED

A.R. 2015 JUL 02



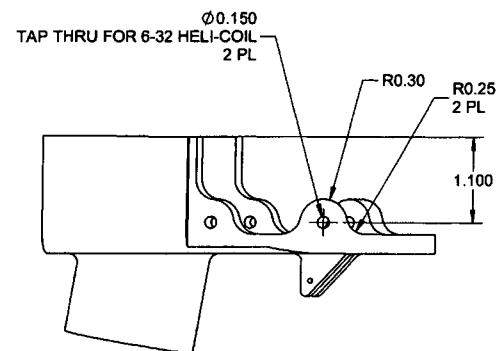
VIEW K-K

B6-9



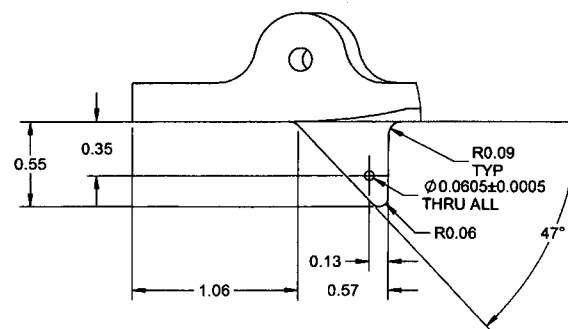
SECTION M-M

D6-9



VIEW L-L

D7-9



DETAIL N

B7-9

RELEASED

4.0. 2015 JUL 02

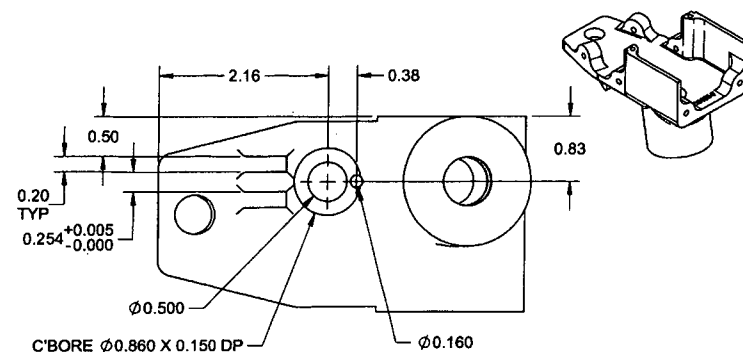
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: N/A

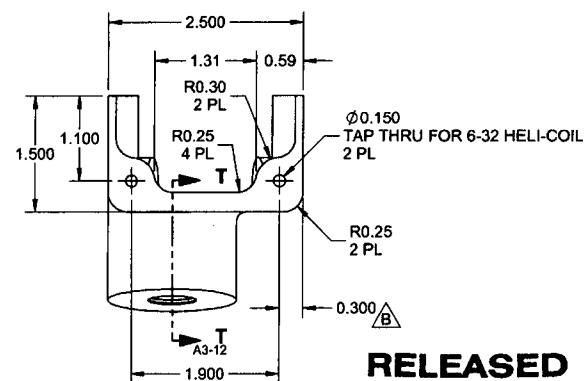
D5155-5 CO-PILOT COLLECTIVE HEAD (EAGLE SINGLE)
DETAIL VIEWS

APPROVED

DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	VS		
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	JFS	D5155	SHEET 10 OF 14
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
DATE	15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRINTED AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



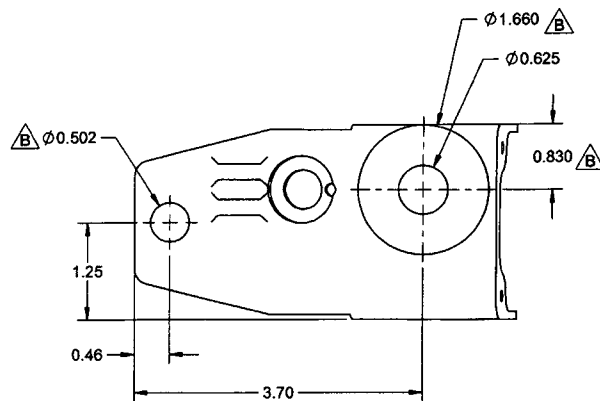
B7-11



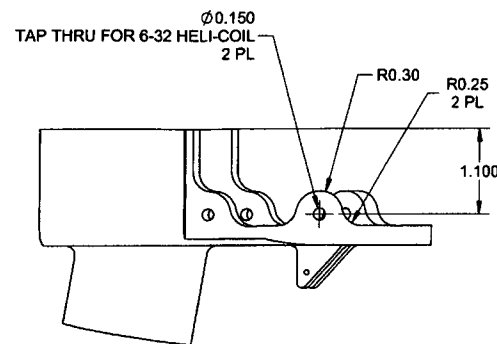
A.P. 2015 JUL 02

D5155-7 CO-PILOT COLLECTIVE HEAD (205)

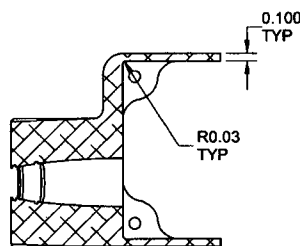
APPROVED	DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D5155 TITLE CO-PILOT COLLECTIVE HEAD	REV. B
	DRAWN	VS		SHEET 11 OF 14
	CHECKED	RF		SCALE
	MFG. APPR.	JFS		NTS
	APPROVED	HS		
	DE APPR.	DS		
DATE		15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS THE PROPERTY OF DART AEROSPACE LTD. IT IS NOT TO BE USED FOR ANY PURPOSE, OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD.	



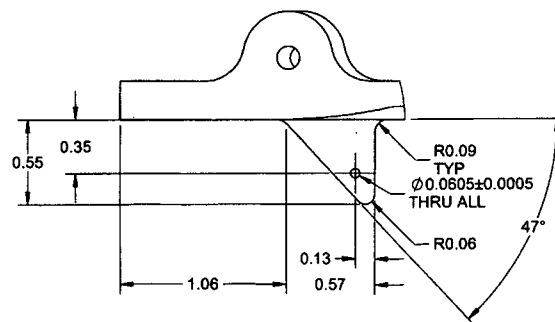
VIEW P-P
B5-11



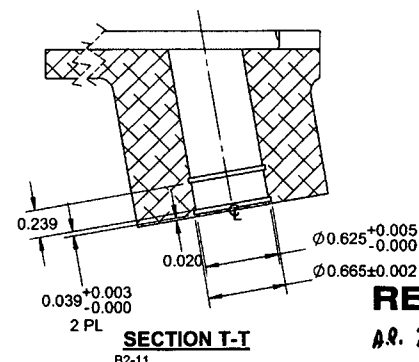
VIEW Q-Q
D7-11



SECTION R-R
C6-11



DETAILS
B6-11



SECTION T-T
B2-11

RELEASED
A.R. 2015 JUL 02

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: N/A

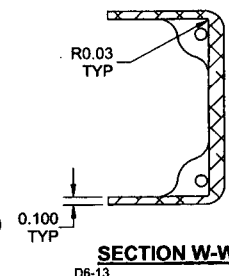
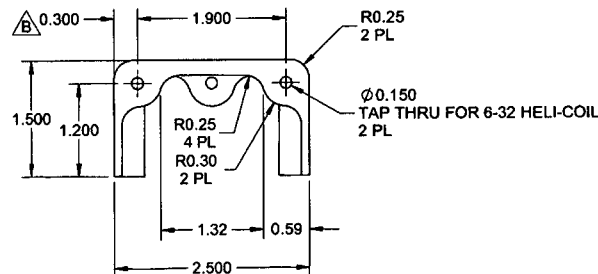
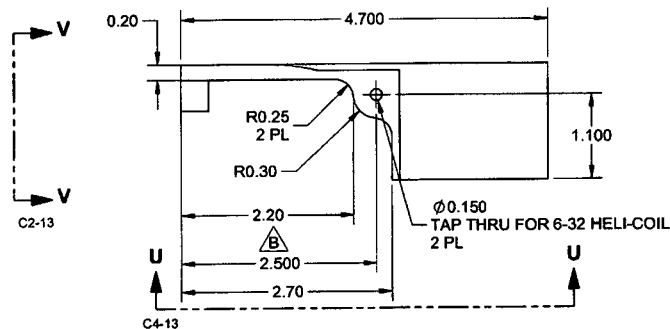
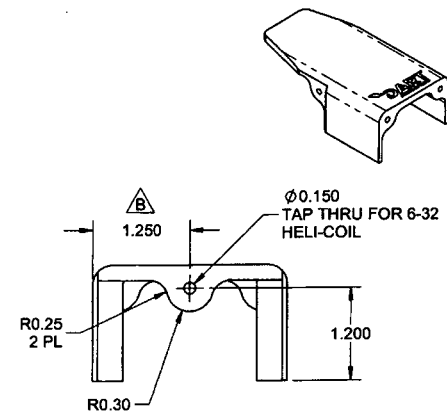
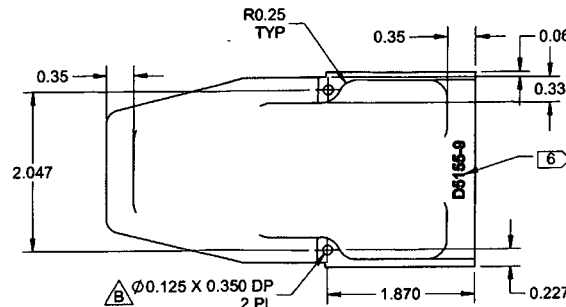
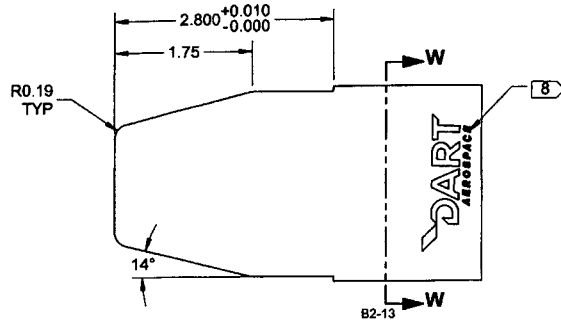
D5155-7 CO-PILOT COLLECTIVE HEAD (205)
DETAIL VIEWS

APPROVED

DESIGN	VS
DRAWN	VS
CHECKED	RF
MFG. APPR.	JFS
APPROVED	HS
DE APPR.	DS
DATE	15.05.21

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO.	REV. B
D5155	SHEET 12 OF 14
TITLE	SCALE
CO-PILOT COLLECTIVE HEAD	NTS
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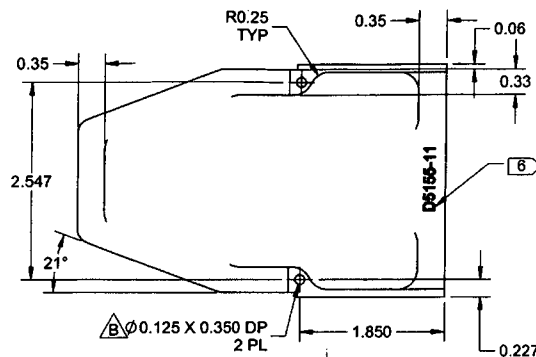
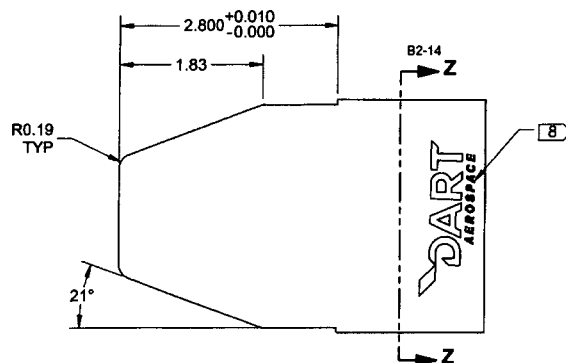
NOTES:

- 1) MATERIAL: 6061-T6/T651/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B
- 2) FINISH: ANODIZE BLACK PER MIL-A-8625F TYPE I OR IB OR IC OR II
OR IIB CLASS 2
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.3 IN THIS AREA TO MAX DEPTH
OF 0.010 WITH A MIN. TOOL RAD OF R0.010
- 7) WEIGHT: 0.31 lbs
- 8) ENGRAVE "DART" LOGO AS SHOWN 0.003-0.005 DP
- 9) UNDIMENSIONED FEATURES DEFINED BY D5155-9.SLDPRT

D5155-9 CO-PILOT COLLECTIVE HEAD (205)

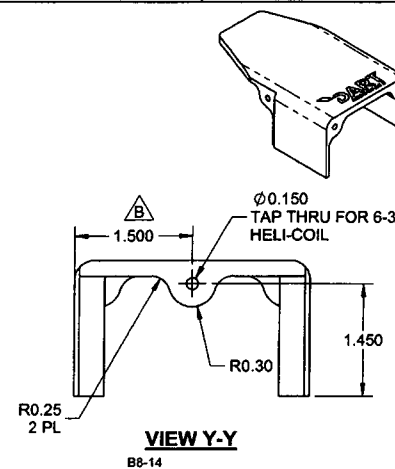
RELEASED
4.8.2015 JUL 02

APPROVED	DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
	DRAWN	VS		
	CHECKED	RF	DRAWING NO. D5155	REV. B
	MFG. APPR.	JFS	SHEET 13 OF 14	
	APPROVED	HS	SCALE	
	DE APPR.	DS	CO-PILOT COLLECTIVE HEAD NTS	
	DATE	15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



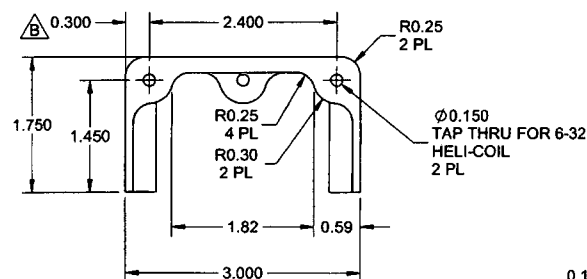
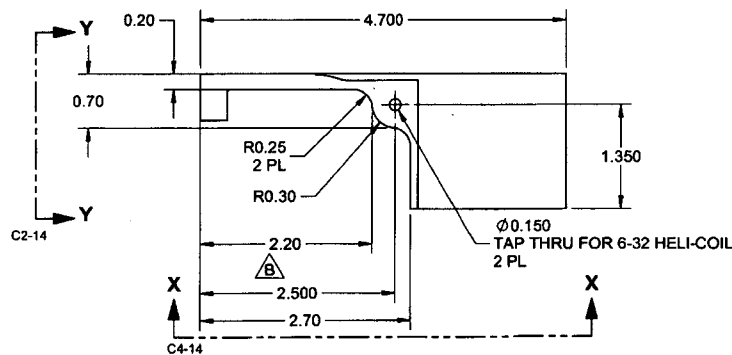
VIEW X-X

B6-14



VIEW Y-Y

B8-14



0.100 TYP

SECTION Z-Z

D6-14

NOTES:

- 1) MATERIAL: 6061-T6/T651/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B
- 2) FINISH: ANODIZE BLACK PER MIL-A-8625F TYPE I OR IB OR IC OR II
OR IIB CLASS 2
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.3 IN THIS AREA TO MAX DEPTH
OF 0.010 WITH A MIN. TOOL RAD OF R0.010
- 7) WEIGHT: 0.36 lbs
- 8) ENGRAVE "DART" LOGO AS SHOWN 0.003-0.005 DP
- 8) UNDIMENSIONED FEATURES DEFINED BY D5155-11.SLDPRT

D5155-11 CO-PILOT COLLECTIVE HEAD (212)

RELEASED

4.9. 2015 JUL 02

APPROVED

DESIGN	VS
DRAWN	VS
CHECKED	RF
MFG. APPR.	JFS
APPROVED	HS
DE APPR.	DS
DATE	15.05.21

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. REV. B
D5155 SHEET 14 OF 14

TITLE SCALE
CO-PILOT COLLECTIVE HEAD NTS

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FACE

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO29046**

Purchase Order Date 7/7/2015

PO Print Date 7/9/2015

Page Number 2 of 3

Order From :

VC-ATG001

Ship To :

DART AEROSPACE LTD

A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE ROAD
ROCKLAND, ON K4K 1T2
CANADA

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone

613-446-4544

Ship To Contact

Ship To Phone

Ship Via:

VENDOR'S TRUCK

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax #

10127-2607

Terms

Net 30

Currency

CAD

FOB

FCA - (Free Carrier)

Line Total: \$69.00

4 134145 D5155-043 CO-PILOT 7/10/2015
Yes
7/10/2015
Black anodize per MIL-A-8625F Type I or IB or IC or II or IIB Class 2, Type III Class 2

5.00

\$5.75 \$28.75

8/15/07-10

Line Total: \$28.75

5 133887 D5230-1 MOUNTING PLATER 7/10/2015
Yes
7/10/2015
Black anodize per MIL-A-8625F Type I or IB or IC or II or IIB Class 2, Type III Class 2

10.00

\$3.75 \$37.50

Line Total: \$37.50

6 133526 D4838-1 UPPER CUTTER 7/14/2015
Yes
7/14/2015
FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2
PRIME: AS PER IAW MIL-P-23377J TYPE I, CLASS N

2.00

\$10.25 \$20.50

Note:

7/9/2015



A.T.G. Industries Inc.
731, rue Industrielle Rd.
PLATING DEPARTMENT
Rockland, On K4K 1T2
Canada
Ph: (613) 446-4544
Fax: (613) 446-4556

Pack List

Number: 63808

Date: 10-Jul-15

To

DART AEROSPACE LTD
1270 ABERDEEN ST.
HAWKESBURY, ON K6A 1K7
Canada

Ship To

DART AEROSPACE LTD
1270 ABERDEEN ST.
HAWKESBURY, ON K6A 1K7
Canada

Ph: 613-632-5200

Fax: 613-632-1185

Ph: 613-632-5200

Fax: 613-632-1185

Terms		Ship Via	
Quantity	Description		
12 ea	Part: D5155-9 BLACK ANODIZE MIL-A-8625 TYPE II CLASS 2 Job: 20150527	Rev: PO: PO29046	Line:
6 ea	Part: D5155-11 BLACK ANODIZE MIL-A-8625 TYPE II CLASS 2 Job: 20150528	Rev: PO: PO29046	Line:
12 ea	Part: D5155-041 BLACK ANODIZE MIL-A-8625 TYPE II CLASS 2 Job: 20150529	Rev: PO: PO29046	Line:
5 ea	Part: D5155-043 ✓ BLACK ANODIZE MIL-A-8625 TYPE II CLASS 2 Job: 20150530	Rev: PO: PO29046	Line: <i>SP 15-07-10</i>
10 ea	Part: D5230-1 BLACK ANODIZE MIL-A-8625 TYPE II CLASS 2 Job: 20150531	Rev: PO: PO29046	Line:
Certificate of Conformance			
A.T.G. Industries certifies that all items in this shipment are in conformance with all requirements, specifications and drawings referenced in the purchase order.			
ISO 9001 : 2008 REGISTERED ATG SALES-2010 TERMS APPLY			



Number: 63808

Date: 10-Jul-15

DART AEROSPACE LTD
1270 ABERDEEN ST.
HAWKESBURY, ON K6A 1K7
Canada

DART AEROSPACE LTD
1270 ABERDEEN ST.
HAWKESBURY, ON K6A 1K7
Canada

Fax: 613-632-1185

Page 2 of 2